

Excel Capstone Project

Customer Churn Analysis

Customer Churn Analysis Using Excel

Project Overview

Customer churn analysis helps businesses understand why customers stop using their services and how to prevent churn. In this project, we will analyze a dataset of customer subscriptions, identify key factors contributing to churn, and create a dashboard to visualize insights.

1. Data Collection & Preparation

Dataset

You can use a sample dataset from Kaggle or create a simulated dataset with the following columns:

- **Customer ID** – Unique identifier for each customer
- **Subscription Start Date** – When the customer subscribed
- **Subscription End Date** – If applicable, when the customer stopped using the service
- **Tenure (Months)** – Length of time the customer stayed
- **Monthly Charges** – How much the customer pays per month
- **Total Charges** – Cumulative amount paid
- **Payment Method** – (Credit Card, PayPal, Bank Transfer)
- **Contract Type** – (Monthly, Yearly, Two-Year)
- **Support Calls** – Number of customer service calls
- **Churn Status** – (Yes/No) indicating if the customer left

2. Data Cleaning & Preprocessing

Use **Power Query** or basic Excel functions to clean the data:

- Remove duplicate customer records using **Remove Duplicates**.
- Handle missing values using **IFERROR()** or **IFNA()**.
- Convert text-based values into categorical labels (e.g., Contract Type: 1 = Monthly, 2 = Yearly).
- Standardize date formats and calculate **Tenure in Months** using:
 - `=DATEDIF(Start_Date, End_Date, "M")`

3. Exploratory Data Analysis (EDA)

Use **Pivot Tables** and **Descriptive Statistics** to analyze patterns:

Key Metrics to Analyze:

✅ Churn Rate Calculation

=COUNTIF(Churn_Status, "Yes") / COUNTA(Churn_Status)

✅ Average Monthly Charges for Churned vs. Retained Customers

=AVERAGEIF(Churn_Status, "Yes", Monthly_Charges)

✅ Impact of Contract Type on Churn (Pivot Table)

- Do more customers with monthly contracts leave compared to yearly ones?

✅ Customer Support Calls & Churn Relationship

- Create a scatter plot to see if high support call numbers lead to churn.

✅ Revenue Lost Due to Churn

=SUMIF(Churn_Status, "Yes", Total_Charges)

- Helps businesses estimate the financial impact of lost customers.

✅ Retention Rate

=1 - Churn Rate

- Provides an insight into how well the company retains customers.

✅ Percentage of Customers by Contract Type

- Use a Pivot Table to calculate the proportion of Monthly, Yearly, and Two-Year contracts.

✅ Average Tenure of Retained vs. Churned Customers

=AVERAGEIF(Churn_Status, "No", Tenure)

- Helps determine if long-tenured customers are more likely to stay.

✅ Churn Rate by Payment Method

- Pivot Table analysis to see which payment method has higher churn.

✅ Customer Lifetime Value (CLV)

=AVERAGEIF(Churn_Status, "No", Total_Charges)

- Estimates the revenue contribution of a retained customer.

Churn Rate Trend Over Time


- Use a line chart to visualize how churn has changed over different months/years.
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4. Customer Churn Dashboard

Create an **interactive dashboard** using:

 **Pivot Tables & Pivot Charts**

 **Slicers** for filtering by Contract Type, Payment Method, etc.

 **Conditional Formatting** to highlight high-risk customers

 **KPI Summary:**

- Total Churned Customers
- Churn Rate (%)
- Top 3 Churn Factors

Key Insights for Pivot Tables & Pivot Charts in Customer Churn Analysis

Customer churn analysis helps businesses understand why customers leave and how to improve retention. Here are **insights and pivot table ideas** to visualize key trends effectively in Excel:

1. Churn Rate by Customer Segment

Pivot Table Fields:

- **Rows:** Customer Segment (e.g., Regular, Premium, Enterprise)
- **Values:** Count of Customer ID (Total Customers)
- **Filters:** Churn Status (Yes/No)

Insight: Identify which customer segment experiences the highest churn rate and develop retention strategies.

Pivot Chart:

- **Stacked Bar Chart:** Compare churn vs. retained customers across segments.

2. Churn by Subscription Plan

Pivot Table Fields:

- **Rows:** Subscription Type (e.g., Basic, Standard, Premium)
- **Values:** Count of Customer ID (Total Customers)
- **Filters:** Churn Status

Insight: Identify if lower-tier or premium plans have higher churn rates. If premium users churn more, pricing or feature concerns might exist.

Pivot Chart:

- **Column Chart:** Show churn distribution across subscription plans.
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3. Revenue Lost Due to Churn

Pivot Table Fields:

- **Rows:** Churn Status
- **Values:** Sum of Revenue

Insight: Calculate the financial impact of churn and determine revenue lost from exiting customers.

Pivot Chart:

- **Pie Chart:** Show revenue share of churned vs. active customers.
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4. Monthly Churn Trend Analysis

Pivot Table Fields:

- **Rows:** Month of Churn Date
- **Values:** Count of Customer ID

Insight: Identify seasonal churn trends and predict peak churn periods.

Pivot Chart:

- **Line Chart:** Show churn rate over time.
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5. Churn Rate by Customer Tenure

Pivot Table Fields:

- **Rows:** Tenure Groups (e.g., 0-6 months, 7-12 months, 1-2 years, etc.)
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Determine if newer or long-term customers are more likely to churn.

Pivot Chart:

- **Histogram or Column Chart:** Show how churn correlates with tenure.
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6. Payment Method & Churn Rate

Pivot Table Fields:

- **Rows:** Payment Method (e.g., Credit Card, PayPal, Bank Transfer)
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Find out if certain payment methods have higher churn rates (e.g., manual payments vs. auto-renewal).

Pivot Chart:

- **Bar Chart:** Compare churn rates across payment methods.
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7. Customer Support Interaction & Churn

Pivot Table Fields:

- **Rows:** Number of Support Tickets Raised
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Identify if frequent support requests correlate with churn, indicating dissatisfaction.

Pivot Chart:

- **Scatter Plot:** Show churn rate based on support ticket volume.
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8. Churn by Geographic Location

Pivot Table Fields:

- **Rows:** Region/Country
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Identify if churn is higher in certain regions due to service issues or market competition.

Pivot Chart:

- **Map Chart (Excel Power BI or Pivot Map):** Show churn distribution geographically.
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9. Customer Engagement vs. Churn

Pivot Table Fields:

- **Rows:** Average Monthly Usage (e.g., Number of Logins, Sessions)
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Determine if inactive users are more likely to churn and create engagement strategies.

Pivot Chart:

- **Bubble Chart:** Show churn rates for different engagement levels.
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10. Discounts & Retention Impact

Pivot Table Fields:

- **Rows:** Discount Received (Yes/No)
- **Values:** Count of Customer ID (Churn Yes & No)

Insight: Analyze if offering discounts helps retain customers or if it attracts customers who later churn.

Pivot Chart:

- **Stacked Bar Chart:** Compare churn rates among customers who received a discount vs. those who didn't.

Bonus Insights for Interactive Dashboard:

- ✓ **Slicers:** Add filters for Customer Segment, Subscription Type, and Region.
- ✓ **Conditional Formatting:** Highlight high-risk churn groups in red.
- ✓ **KPIs & Metrics:** Display key indicators like **Churn Rate, Revenue Lost, and Retention Rate** in a summary panel.

5. Insights & Recommendations

- ◆ Customers on **monthly contracts** are more likely to churn – recommend offering discounts for yearly plans.
- ◆ High **support call frequency** correlates with churn – improve customer service efficiency.
- ◆ **Higher monthly charges** increase churn risk – offer loyalty discounts to long-term customers.
- ◆ Customers using **manual payment methods (e.g., Bank Transfer)** have higher churn rates – encourage automatic payments.

6. Deliverables

- ✓ Cleaned and structured Excel dataset
 - ✓ Churn analysis report (Excel file with formulas)
 - ✓ Interactive dashboard with slicers, charts, and KPIs
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